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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,872	08/04/2003	Tyler A. Lowrey	ITO.0046US (P16201)	5269
21906	7590	11/30/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			LE. THONG QUOC	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/633,872	LOWREY ET AL.	
	Examiner	Art Unit	
	Thong Q. Le	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-14,16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)                   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application         |
| Paper No(s)/Mail Date _____  | 6) <input checked="" type="checkbox"/> Other: <u>withdrawn finality</u> . |

### **DETAILED ACTION**

1. Pre-amendment filed on 11/01/2006 has been entered.
2. Claims 1,3-7,9-14,16 are presented for examination.

### ***Response to Arguments***

3. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3-7,9-14,16 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lowrey (Pub. U.S. Patent No. 2004/0113137).

Regarding claims 1, 6, Lowrey discloses an apparatus (Figure 4) comprising:

Regarding claim 1, Lowrey discloses a method comprising:

Forming a phase change memory element having a holding voltage that is at least 80 percent of the threshold voltage of the element and holding voltage greater than about .9 volts ([0120], phase change element has threshold voltage is about 1.2

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volts, holding voltage is about 1 volts, it is greater than .9 volts and about 80% of the threshold voltage of element).

Regarding claim 3, 9, 16, Lowrey discloses forming a phase change memory element to have a threshold voltage that does not vary by more than 10 percent with programming currents varying as much as two times ([0032], [0036]).

Regarding claims 4-5, 7, 10, 13-14, Lowrey discloses forming a phase change memory element including a phase change material (Figure 3, 220) between a pair of electrodes (Figure 3, 230, 210, [0037]), and forming a phase change material with a lower electrode of titanium silicon nitride ([0038]).

Regarding claim 6, Lowrey discloses an apparatus (Figure 4) comprising:  
a phase change memory element (Figure 4, 130) to be read ([0032]) with a voltage greater than or equal to the threshold voltage of the element and to have a holding voltage that is at least 80 percent of the threshold voltage of element ([0120], threshold voltage is 1.2v, and holding voltage is 1 volt, hence the holding voltage at least or more than 80% of threshold voltage of phase change memory element).

Regarding claims 11 Lowrey discloses an apparatus (Figure 20) comprising:  
a processor (Figure 20, 865) ; and  
a phase change memory element having a holding voltage that is at least 80 percent of the threshold voltage of the element and holding voltage greater than about .9 volts ([0120], phase change element has threshold voltage is about 1.2 volts, holding voltage is about 1 volts, it is greater than .9 volts and about 80% of the threshold voltage of element. Hence, it overcomes present claim invention).

Regarding claims 12, Lowrey discloses the wireless interface including a dipole antenna ([01333]).

Since Lowrey (2004/0113137) discloses an apparatus of a memory cell includes select devices and memory element. The select devices and memory element may have the same structure and same material. The select devices and memory element may comprising a phase change material, and phase change material may includes a chalcogenide material or an ovonic material and memory cell may be referred to as an ovonic memory cell ([0117]). Although reference does not explain phase change memory but since the phase change material of memory element similar with phase change material of select device, hence the holding voltage of memory element is the same holding voltage of select device, which is shown in Figure 2 and paragraph 120, examiner believes that phase change of memory element do the same as phase change of select device do.

More specifically, claim 1 in reference cited of Lowrey discloses an apparatus comprising a phase change material as phase change material in present invention, which is provided in paragraph 120 and shown in Figure 2.

As described above, the reference cited clearly overcomes the claims present invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Le whose telephone number is 571-272-1783. The examiner can normally be reached on 8:00am-5:00pm M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarabian Amir can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thong Q. Le  
Primary Examiner  
Art Unit 2827

11/26/2006